

Mr. Ira Smith
Hydraulic Press Brick Company
Centerton Road
Brooklyn, Indiana, 46111

Re: **109-11087**
Second Significant Source Modification to
Part 70 No.: T109-6835-00007

Dear Mr. Smith:

Hydraulic Press Brick Company was issued a Part 70 permit T109-6835-00007 on February 2, 1999 for a stationary shale processing plant producing lightweight expanded shale aggregate. A letter requesting changes to this permit was received on June 25, 1999. Pursuant to the provisions of 326 IAC 2-7-12 a Significant Source modification to this permit is hereby approved as described in the attached Technical Support Document.

The modification consists of the change in fuel to burn No. 4 fuel oil in addition to natural gas and bituminous coal:

- (a) one (1) rotary kiln, identified as K4, with a maximum heat input of 100 million British Thermal Units (MMBtu) per hour burning No. 4 fuel oil, natural gas or bituminous coal, with a maximum capacity of 20 tons of raw shale per hour, using a Peabody wet scrubber as control, and exhausting to stack ST4.

All other conditions of the permit shall remain unchanged and in effect. Please attach a copy of this modification and the following revised permit pages to the front of the original permit.

This decision is subject to the Indiana Administrative Orders and Procedures Act - IC 4-21.5-3-5. If you have any questions on this matter contact Phillip Ritz, c/o OAM, 100 North Senate Avenue, P.O. Box 6015, Indianapolis, Indiana, 46206-6015, or call (800) 451-6027, press 0 and ask for extension (3-6878), or dial (973) 575-2555, extension 3241.

Sincerely,

Paul Dubenetzky, Chief
Permits Branch
Office of Air Management

Attachments
PR/EVP

cc: File - Morgan County
U.S. EPA, Region V
Morgan County Health Department
Air Compliance Section Inspector - Marc Goldman
Compliance Data Section - Karen Nowak
Administrative and Development - Janet Mobley
Technical Support and Modeling - Nancy Landau

PART 70 OPERATING PERMIT OFFICE OF AIR MANAGEMENT

**Hydraulic Press Brick Company
Centerton Road
Brooklyn, Indiana 46111**

(herein known as the Permittee) is hereby authorized to operate subject to the conditions contained herein, the source described in Section A (Source Summary) of this permit.

This permit is issued in accordance with 326 IAC 2 and 40 CFR Part 70 Appendix A and contains the conditions and provisions specified in 326 IAC 2-7 as required by 42 U.S.C. 7401, et. seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments), 40 CFR Part 70.6, IC 13-15 and IC 13-17.

Operation Permit No.: T109-6835-00007	
Issued by: Felicia R. George, Assistant Commissioner Office of Air Management	Issuance Date: February 2, 1999
First Administrative Amendment: 109-10905	Pages Affected: 4, 5, 6, 6a, 42a, 42b, 42c, 42d
Issued by: Paul Dubenetzky, Branch Chief Office of Air Management	Issuance Date:
Second Significant Source Modification: 109-11087	Pages Affected: 5, 6, 32, 33, 34, 35, 36, 36a, 36b and 46
Issued by: Paul Dubenetzky, Branch Chief Office of Air Management	Issuance Date:

SECTION A

SOURCE SUMMARY

This permit is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Management (OAM). The information describing the source contained in conditions A.1 through A.3 is descriptive information and does not constitute enforceable conditions. However, the Permittee should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Permittee to obtain additional permits or seek modification of this permit pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

A.1 General Information [326 IAC 2-7-4(c)] [326 IAC 2-7-5(15)]

The Permittee owns and operates a stationary shale processing plant producing lightweight expanded shale aggregate.

Responsible Official: Ira Smith
Source Address: Centerton Road, Brooklyn, Indiana 46111
Mailing Address: P.O. Box 7, Brooklyn, Indiana 46111-0007
SIC Code: 3295
County Location: Morgan
County Status: Attainment for all criteria pollutants
Source Status: Part 70 Permit Program
Major Source, under PSD

A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-7-4(c)(3)] [326 IAC 2-7-5(15)]

This stationary source consists of the following emission units and pollution control devices:

- (a) One (1) pre-kiln shale processing operation, identified as pre-kiln, with a maximum capacity of 200 tons of raw shale per hour, using wet suppression of fugitive dust as control, and exhausting fugitively, and consisting of the following equipment:
 - (1) one (1) primary crusher, identified as PK1, with a maximum capacity of 200 tons of raw shale per hour,
 - (2) one (1) secondary crusher, identified as PK2, with a maximum capacity of 100 tons of raw shale per hour,
 - (3) six (6) conveyors, identified as PK3 through PK8, each with a maximum capacity of 200 tons of raw shale per hour,
- (b) One (1) rotary kiln, identified as K3, with a maximum heat input of 100 MMBtu per hour burning natural gas or bituminous coal, with a maximum capacity of 20 tons of raw shale per hour, using a Peabody wet scrubber as control, and exhausting to stack ST4.
- (c) one (1) rotary kiln, identified as K4, with a maximum heat input of 100 million British Thermal Units (MMBtu) per hour burning No. 4 fuel oil, natural gas or bituminous coal, with a maximum capacity of 20 tons of raw shale per hour, using a Peabody wet scrubber as control, and exhausting to stack ST4.
- (d) One (1) rotary kiln, identified as K5, with a maximum heat input of 100 MMBtu per hour burning natural gas or bituminous coal, with a maximum capacity of 40 tons of raw shale per hour, using a cloth baghouse as control, and exhausting to stack ST5,

- (e) One (1) haydite crusher line, identified as HCR, with a maximum capacity of 100 tons of expanded shale per hour, using wet suppression of fugitive dust as control, exhausting fugitively, and consisting of the following equipment:
 - (1) one (1) primary haydite crusher, identified as HCR1, with a maximum capacity of 100 tons of expanded shale per hour,
 - (2) one (1) secondary haydite crusher, identified as HCR2, with a maximum capacity of 100 tons of expanded shale per hour,
 - (3) three (3) screens, identified as HCR3 through HCR5, each with a maximum capacity of 100 tons of expanded shale per hour, and
 - (4) seven (7) conveyors, identified as HCR9 through HCR15, each with a maximum capacity of 100 tons of expanded shale per hour, and
- (f) One (1) reciprocating grate clinker cooler, identified as CLNKCOOL, with a maximum capacity of 40 tons of expanded shale per hour, using a multiclone as control, and exhausting to stack ST2.
- (g) One (1) expanded shale aggregate crusher line, identified as ESA, with a maximum capacity of 30 tons of expanded shale per hour and consisting of the following equipment:
 - (1) one (1) expanded shale aggregate crusher, identified as ESA 1, utilizing a baghouse as particulate control, with a maximum capacity of 30 tons of expanded shale per hour and exhausting through stack ST6,
 - (2) one (1) screen, identified as ESA 2, utilizing a baghouse as particulate control, with a maximum capacity of 30 tons of expanded shale per hour and exhausting through stack ST6, and
 - (3) five (5) conveyors, identified as ESA 3 through ESA 7, each with a maximum capacity of 30 tons of expanded shale per hour, utilizing a water spray system on the feed conveyor as particulate control and exhausting fugitively.

A.3 Specifically Regulated Insignificant Activities [326 IAC 2-7-1(21)] [326 IAC 2-7-4(c)]
[326 IAC 2-7-5(15)]

This stationary source also includes the following insignificant activities which are specifically regulated, as defined in 326 IAC 2-7-1(21):

- (a) Paved and unpaved roads and parking lots with public access,
- (b) Other activities or categories not previously identified with emissions below insignificant thresholds:
 - (1) Two coal silos, identified as silos 1 and 2, with a conveying system.
 - (2) Four (4) covered silos, identified as silos 3, 4, 5A, and 5B, each with a maximum capacity of 200 tons of raw shale,
 - (3) Three (3) hoppers, identified as HCR6 through HCR8, each with a maximum capacity of 100 tons of raw shale per hour,
 - (4) Two (2) chutes, identified as HCR16 and HCR17, each with a maximum capacity of 100 tons of expanded shale per hour.

A.4 Part 70 Permit Applicability [326 IAC 2-7-2]

This stationary source is required to have a Part 70 permit by 326 IAC 2-7-2 (Applicability) because:

- (a) It is a major source, as defined in 326 IAC 2-7-1(22);
- (b) It is a source in a source category designated by the United States Environmental Protection Agency (U.S. EPA) under 40 CFR 70.3 (Part 70 - Applicability).

SECTION D.2

FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]

- (a) One (1) rotary kiln, identified as K3, with a maximum heat input of 100 MMBtu per hour burning natural gas or bituminous coal, with a maximum capacity of 20 tons of raw shale per hour, using a Peabody wet scrubber as control, and exhausting to stack ST4.
- (b) one (1) rotary kiln, identified as K4, with a maximum heat input of 100 million British Thermal Units (MMBtu) per hour burning No. 4 fuel oil, natural gas or bituminous coal, with a maximum capacity of 20 tons of raw shale per hour, using a Peabody wet scrubber as control, and exhausting to stack ST4.
- (c) One (1) rotary kiln, identified as K5, with a maximum heat input of 100 MMBtu per hour burning natural gas or bituminous coal, with a maximum capacity of 40 tons of raw shale per hour, using a cloth baghouse as control, and exhausting to stack ST5.

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.2.1 PSD Minor Limit [326 IAC 2-2] [40 CFR 52.21]

- (a) The use of No. 4 fuel oil in rotary kiln K4 shall be limited to less than 0.99 million gallons per twelve (12) month consecutive period. For SO₂ and NO_x, the net emission increase from any modification must be limited to less than 40 tons per twelve (12) month consecutive period. Therefore, the allowable SO₂ and NO_x emissions from the modification shall not exceed 39 tons per twelve (12) month consecutive period for SO₂ emissions and 39 tons per twelve (12) month consecutive period for NO_x emissions.
- (b) For PM₁₀, the net emission increase from any modification must be limited to less than 3.42 pounds per hour. Therefore, the allowable PM-10 emissions from the modification shall not exceed 15 tons per year for PM-10 emissions.

Compliance with this limit makes 326 IAC 2-2 (Prevention of Significant Deterioration) and 40 CFR 52.21 not applicable.

D.2.2 Sulfur Dioxide (SO₂) [326 IAC 7-1.1-1]

- (a) Pursuant to 326 IAC 7-1.1-1 (Sulfur Dioxide Emissions Limitations), the SO₂ emissions from each of the two (2) rotary kilns (IDs K3, and K5) when burning coal, shall not exceed six (6) pounds per MMBtu of coal combustion. The sulfur dioxide emissions from the one (1) rotary kiln (ID K4) when burning No. 4 fuel oil shall be limited to 1.6 pounds per MMBtu of heat input from No. 4 fuel oil.

Pursuant to Operation Permit 55-02-90-0094 and 55-02-90-0096, the sulfur content of the coal delivered to the two (2) rotary kilns (IDs K3, and K5) when burning coal, shall not exceed 2.40% by weight.

- (b) The sulfur dioxide emissions from the one (1) rotary kiln (ID K4) when burning No. 4 fuel oil shall be limited to 1.6 pounds per MMBtu of heat input from No. 4 fuel oil.

D.2.3 Particulate Emission Limitations [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2 (Process Operations), the allowable PM emission rate from each of the:

- (a) two (2) rotary kilns (IDs K3 and K4) shall not exceed 30.51 pounds per hour each when

operating at a process weight rate of 40,000 pounds per hour (equivalent to 20 tons per hour). When both of the two (2) rotary kilns (IDs K3 and K4) are operating the allowable PM emission rate from stack ST4 shall not exceed the sum of the individual limits for each kiln (equivalent to 61.02 pounds per hour).

The pound per hour limitation was calculated with the following equation:

Interpolation and extrapolation of the data for the process weight rate up to 60,000 pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67} \quad \text{where } E = \text{rate of emission in pounds per hour; and} \\ P = \text{process weight rate in tons per hour}$$

- (b) one (1) rotary kiln (ID K5) shall not exceed 42.53 pounds per hour when operating at a process weight rate of 80,000 pounds per hour (equivalent to 40 tons per hour).

The pound per hour limitation was calculated with the following equation:

Interpolation and extrapolation of the data for the process weight rate in excess of sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 55.0P^{0.11}-40 \quad \text{where } E = \text{rate of emission in pounds per hour, and} \\ P = \text{process weight rate in tons per hour}$$

D.2.4 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for this facility and its control devices.

Compliance Determination Requirements

D.2.5 Testing Requirements [326 IAC 2-7-6(1),(6)]

During the period between 30 and 36 months after issuance of this permit, the Permittee shall perform PM testing on the one (1) Kiln (ID K5) and the one (1) Kiln (ID K3) utilizing Methods 5 or 17 (40 CFR 60, Appendix A) for PM or other methods as approved by the Commissioner. This test shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. In addition to these requirements, IDEM may require compliance testing when necessary to determine if the facility is in compliance.

D.2.6 Sulfur Dioxide Emissions and Sulfur Content [326 IAC 2-7-5(3)(A)] [326 IAC 2-7-6]

Pursuant to 326 IAC 7-2, the Permittee shall demonstrate that the sulfur dioxide emissions do not exceed six (6.0) pounds per MMBtu when burning coal and one and six tenths (1.6) pounds per MMBtu when burning No. 4 fuel oil. Compliance shall be determined utilizing one of the following options:

- (a) Coal sampling and analysis shall be performed using one of the following procedures:

- (1) Minimum Coal Sampling Requirements and Analysis Methods [326 IAC 3-7-2(b)(3)]:

- (A) The coal sample acquisition point shall be at a location where

representative samples of the total coal flow to be combusted by the facility or facilities may be obtained. A single as-bunkered or as-burned sampling station may be used to represent the coal to be combusted by multiple facilities using the same stockpile feed system;

- (B) Coal shall be sampled at least three (3) times per day and at least one (1) time per eight (8) hour period unless no coal is bunkered during the preceding eight (8) hour period;
 - (C) Minimum sample size shall be five hundred (500) grams;
 - (D) Samples shall be composited and analyzed at the end of each calendar month;
 - (E) Preparation of the coal sample, heat content analysis, and sulfur content analysis shall be determined pursuant to 326 IAC 3-7-2(c), (d), (e); or
- (2) Sample and analyze the coal pursuant to 326 IAC 3-7-2(a);
 - (3) Sample and analyze the coal pursuant to 326 IAC 3-7-3; or
- (b) Upon written notification to IDEM by a facility owner or operator, continuous emission monitoring data collected and reported pursuant to 326 IAC 3-5-1 may be used as the means for determining compliance with the emission limitations in 326 IAC 7-2. Upon such notification, the other requirements of 326 IAC 7-2 shall not apply. [326 IAC 7-2-1(e)]
 - (c) Compliance may also be determined by conducting a stack test for sulfur dioxide emissions from the three (3) rotary kilns (IDs K3, K4 and K5), using 40 CFR 60, Appendix A, Method 6 in accordance with the procedures in 326 IAC 3-6, which is conducted with such frequency as to generate the amount of information required by (a) or (b) above. [326 IAC 7-2-1(b)]

A determination of noncompliance pursuant to any of the methods specified in (a), (b), or (c) above shall not be refuted by evidence of compliance pursuant to the other method.

D.2.7 Particulate Matter (PM)

- (a) The wet scrubber for PM control shall be in operation at all times when the two (2) rotary kilns (IDs K3 and K4) are in operation.
- (b) The baghouse for PM control shall be in operation at all times when the one (1) rotary kiln (ID K5) is in operation.

Compliance Monitoring Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

D.2.8 Parametric Monitoring

- (a) The Permittee shall record the total static pressure drop across the wet scrubber used in conjunction with the two (2) rotary kilns (IDs K3 and K4), at least once daily when the two (2) rotary kilns (IDs K3 and K4) are in operation when venting to the atmosphere. Unless operated under conditions for which the Compliance Response Plan specifies otherwise, the pressure drop across the wet scrubber shall be maintained above 8.0 inches of water or a range established during the latest stack test. The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when the pressure reading is outside of the above mentioned range for any one reading.
- (b) The Permittee shall record the total static pressure drop across the baghouse used in conjunction with the one (1) rotary kiln (ID K5), at least once daily when the one (1) rotary kiln (ID K5) is in operation when venting to the atmosphere. Unless operated under conditions for which the Compliance Response Plan specifies otherwise, the pressure drop across the baghouse shall be maintained within the range of 3.0 and 8.0 inches of water or a range established during the latest stack test. The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when the pressure reading is outside of the above mentioned range for any one reading.

The instrument used for determining the pressure shall comply with Section C - Pressure Gauge Specifications, of this permit, shall be subject to approval by IDEM, OAM, and shall be calibrated at least once every six (6) months.

D.2.9 Baghouse Inspections

An inspection shall be performed each calendar quarter of all bags controlling the one (1) rotary kiln (ID K5) operation when venting to the atmosphere. All defective bags shall be replaced.

D.2.10 Broken or Failed Bag or Scrubber Detection

In the event that bag or scrubber failure has been observed.

- (a) The affected compartments will be shut down immediately until the failed units have been repaired or replaced. Within eight (8) hours of the determination of failure, response steps according to the timetable described in the Compliance Response Plan shall be initiated. For any failure with corresponding response steps and timetable not described in the Compliance Response Plan, response steps shall be devised within eight (8) hours of discovery of the failure and shall include a timetable for completion. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).
- (b) For single compartment baghouses, failed units and the associated process will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

D.2.11 Visible Emissions Notations

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- (a) Daily visible emission notations of the two (2) rotary kilns (IDs K3 and K4) wet scrubber stack (S/V ID ST4) and the one (1) rotary kiln (ID K5) baghouse stack (S/V ID ST 5) emissions shall be performed once per day during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.
 - (b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.
 - (c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.
 - (d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.
 - (e) The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when an abnormal emission is observed.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.2.12 Record Keeping Requirements

- (a) To document compliance with Condition D.2.3, the Permittee shall maintain records in accordance with (1) through (4) below when burning coal. Records maintained for (1) through (4) shall be taken monthly and shall be complete and sufficient to establish compliance with the PM and SO₂ emission limits established in D.2.3 and D.2.4.
 - (1) Calendar dates covered in the compliance determination period;
 - (2) Actual coal usage since last compliance determination period;
 - (3) Sulfur content, heat content, and ash content; and
 - (4) Sulfur dioxide emission rates.
- (a) To document compliance with Condition D.2.1 and D.2.3, the Permittee shall maintain records in accordance with (1) through (6) below. Records maintained for (1) through (6) shall be taken monthly and shall be complete and sufficient to establish compliance with the SO₂ and NO_x usage limits and/or the SO₂ and NO_x emission limits established in Condition D.1.1, as pertains to rotary kiln K4.
 - (1) Calendar dates covered in the compliance determination period;
 - (2) Actual No. 4 fuel oil usage since last compliance determination period;
 - (3) Sulfur content, heat content, and ash content; and
 - (4) Sulfur dioxide emission rates.
- (b) Pursuant to 326 IAC 3-7-5(a), owners or operators of sources with total coal-fired capacity greater than or equal to one hundred (100) MMBtu per hour actual heat input shall develop a standard operating procedure (SOP) to be followed for sampling,

handling, analysis, quality control, quality assurance, and data reporting of the information collected pursuant to 326 IAC 3-7-2 through 326 IAC 3-7-4. In addition, any revision to the SOP shall be submitted to IDEM, OAM.

- (c) To document compliance with Condition D.2.9, the Permittee shall maintain the following as pertains to the baghouse and the wet scrubber:
 - (1) Daily records of the following operational parameters during normal operation when venting to the atmosphere:
 - (A) Inlet and outlet differential static pressure; and
 - (B) Cleaning cycle: frequency and differential pressure.
 - (2) Documentation of all response steps implemented, per event .
 - (3) Operation and preventive maintenance logs, including work purchases orders, shall be maintained.
 - (4) Quality Assurance/Quality Control (QA/QC) procedures.
 - (5) Operator standard operating procedures (SOP).
 - (6) Manufacturer's specifications or its equivalent.
 - (7) Equipment "troubleshooting" contingency plan.
 - (8) Documentation of the dates vents are redirected.
- (d) To document compliance with Condition D.2.10, the Permittee shall maintain the following as pertains to the baghouse:
 - (1) To document compliance with Condition D.2.10, the Permittee shall maintain records of the results of the inspections required under Condition D.2.8 and the dates the vents are redirected.
- (e) To document compliance with Condition D.2.12 the Permittee shall maintain the following as pertains to the baghouse:
 - (1) To document compliance with Condition D.2.12, the Permittee shall maintain records of daily visible emission notations of the three (3) rotary kilns (IDs K3, K4 and K5) stack exhaust.
- (f) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.2.13 Reporting Requirements

A quarterly summary of the information to document compliance with Condition D.2.1 shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported.

Hydraulic Press Brick Company
Brooklyn, Indiana
Permit Reviewer: PR/EVP

Second Significant Source Modification 109-11087
Amended By: PR/EVP

Page 36b of 46
OP No. T109-6835-00007

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR MANAGEMENT
COMPLIANCE DATA SECTION**

Part 70 Quarterly Report

Source Name: Hydraulic Press Brick Company
Source Address: Centerton Road
Mailing Address: Brooklyn, Indiana, 46111
Part 70 Permit No.: T109-6835-00007
Facility: Rotary kiln K4
Parameter: SO₂ and NOx

Limit: The use of No. 4 fuel oil in rotary kiln K4 shall be limited to less than 0.99 million gallons per twelve (12) month consecutive period and the sulfur content of the No. 4 fuel oil delivered to rotary kiln K4 when burning No. 4 fuel oil, shall not exceed 0.5% by weight.

YEAR: _____

Month	Column 1	Column 2	Column 1 + Column 2
	No. 4 Fuel Oil Usage This Month	No. 4 Fuel Oil Usage Previous 11 Months	No. 4 Fuel Oil Usage 12 Month Total
Month 1			
Month 2			
Month 3			

9 No deviation occurred in this quarter.

9 Deviation/s occurred in this quarter.
Deviation has been reported on: _____

Submitted by: _____
Title / Position: _____
Signature: _____
Date: _____
Phone: _____

Indiana Department of Environmental Management Office of Air Management

Addendum to the Technical Support Document for a Source Modification to a Part 70 Operating Permit

Source Name:	Hydraulic Press Brick Company
Source Location:	Centerton Road, Brooklyn, Indiana, 46111
County:	Morgan
SIC Code:	3295
Operation Permit No.:	T109-6835-00007
Operation Permit Issuance Date:	February 2, 1999
Significant Source Modification No.:	SSM109-11087-00007
Permit Reviewer:	Phillip Ritz/EVP

On August 14, 1999, the Office of Air Management (OAM) had a notice published in the Martinsville Daily Reporter, Mooresville, Indiana, stating that Hydraulic Press Brick Company had applied for a Source Modification to a Part 70 Operating Permit relating to the modification of rotary kiln K4 to burn No. 4 fuel oil in addition to natural gas and bituminous coal. This modification to change fuel will not result in any increase in capacity throughput or de-bottlenecking of the existing operation. The notice also stated that OAM proposed to issue a permit for this operation and provided information on how the public could review the proposed permit and other documentation. Finally, the notice informed interested parties that there was a period of thirty (30) days to provide comments on whether or not this permit should be issued as proposed.

On September 10, 1999, David Jordan of Environmental Resources Management submitted comments on behalf of Hydraulic Press Brick Company on the proposed Source Modification to a Part 70 Operating Permit. The summary of the comments and corresponding responses is as follows:

Comment 1

Throughout the permit and Technical Support Document, IDEM notes that the modification consists of "the change in fuel to burn No. 4 fuel oil instead of natural gas and bituminous coal." Hydraulic Press Brick believes that its application was clear in its intent to have the ability to burn natural gas, bituminous coal, or No. 4 fuel oil. It has never been Hydraulic Press Brick's intent to give up its existing ability to combust natural gas or bituminous coal. As currently written, the permit is unacceptable, as it would restrict operation of the Number 4 Kiln to less than 1500 hours per year of operation.

Comment 2

In Condition D.2.1 of the Permit, this condition creates restrictions on annual oil combustion in order to avoid applicability of Prevention of Significant Deterioration (PSD) regulations. The allowance created is based upon the regulatory definition of a "significant" increase (40 tons per year for both sulfur dioxide and nitrogen oxides) plus credit for actual emissions from the unit over the past two years of operation. Since Hydraulic Press Brick does not wish to give up its right to operate on natural gas or coal, the allowance to avoid PSD applicability should be 40 tons per year per pollutant only.

Responses 1+2

Form D supplied with the application, indicated that rotary kiln K4 would combust only fuel oil. However, the source has commented that this modification consists of the addition of No. 4 fuel oil to coal and natural gas as a fuel for the rotary kiln K4. As the natural gas and coal combustion units are not being removed from the source and will continue to be combusted, there are no contemporaneous decreases associated with this modification. The "Potential to Emit of the Modification After Issuance" table on page 3 of 13 of the TSD has been changed to remove the contemporaneous decreases resulting from the two year averaged emissions from the kiln, and to revise the net emissions.

The fuel oil limitation in rotary kiln K4 has been changed to maintain the minor PSD limit and to reflect that the kiln also combusts coal and natural gas. As there are no contemporaneous decreases associated with this modification, the No. 4 fuel oil usage must be limited to 993.63 kgal of No. 4 fuel oil per year. This usage limitation is more stringent than the public noticed limitation to 1,211.4 kgal/year. The 993.63 kgal of No. 4 fuel oil per year limitation will limit the potential to emit SO₂ and NO_x emissions from the modification to less than 40 tons per year.

Additionally, to ensure that yearly PM-10 emissions do not exceed 15 tons per year, hourly PM-10 emissions are limited to 3.42 pounds per hour (3.42 pounds/hour = 15 tons/year * 2000 pounds/ton / 8760 hours/year). Therefore, the PSD requirements do not apply to this modification.

The emission calculations utilized to determine this limitation are as follows:

Limited Potential To Emit for Rotary Kiln K4						
Heat Input Capacity MMBtu/hr	Fuel Usage Limitation	Limited Potential Throughput kgals/year	S = Weight % Sulfur			
			0.5			
100.00	84.12%	993.63				
Pollutant						
Emission Factor in lb/kgal	PM* 0.0	PM10* 0.0	SO ₂ 78.5	NOx 47.0	VOC 1.0	CO 5.0
Potential Emission in tons/yr	0.02	0.02	39.00	23.35	0.52	2.48

Methodology

1 gallon of #4 Fuel oil has a heating value of 140,000 Btu

Potential Throughput (kgals/year) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1kgal per 1000 gallon x 1 gal per 0.140 MMBtu

Emission Factors are from AP 42 Tables 1.3-2 and 1.3-4 (SCC 1-03-004-01/02-03 and 1-03-004-04)

PM and PM10 emissions controlled with a wet scrubber with 99.5% efficiency.

Fuel Usage Limitation (kgal/year) = (1- 39.00 tpy SO₂ Limitation/Potential Throughput (kgals/year) x SO₂ Emission Factor (lb/kgal) / 2000 (lbs/ton))

Emission (tons/yr) = Throughput (kgals/year) x Emission Factor (lb/kgal)/2,000 lb/ton

The changes to the Notice of 30-day Period For Public Comment are as follows:

Notice is hereby given that the above-mentioned company, located at Centerton Road, Brooklyn, Indiana, 46111, has made application to the Indiana Department of Environmental Management (IDEM), Office of Air Management (OAM) for a Significant Source Modification to a Part 70 Permit for the change in fuel in the one (1) rotary kiln, identified as K4, to burn No. 4 fuel oil ~~instead of~~ **in addition to** natural gas and bituminous coal.

The changes to Section A.2 of the permit are as follows:

- (c) one (1) rotary kiln, identified as K4, with a maximum heat input of 100 million British Thermal Units (MMBtu) per hour burning No. 4 fuel oil, **natural gas or bituminous coal**, with a maximum capacity of 20 tons of raw shale per hour, using a Peabody wet scrubber as control, and exhausting to stack ST4.

The changes to Section D.2 of the permit, under Facility Description, are as follows:

- (b) one (1) rotary kiln, identified as K4, with a maximum heat input of 100 million British Thermal Units (MMBtu) per hour burning No. 4 fuel oil, **natural gas or bituminous coal**, with a maximum capacity of 20 tons of raw shale per hour, using a Peabody wet scrubber as control, and exhausting to stack ST4.

The changes to Condition D.2.1, under the PSD Minor Limit, are as follows:

- (a) The use of No. 4 fuel oil in rotary kiln K4 shall be limited to less than ~~1,211.46 thousand~~ **0.99 million** gallons per twelve (12) month consecutive period. For SO₂ and NO_x, the net emission increase from any modification must be limited to less than 40 tons per twelve (12) month consecutive period. Therefore, the allowable SO₂ and NO_x emissions from the modification ~~cannot~~ **shall not** exceed ~~47.55~~ **39** tons per twelve (12) month consecutive period (~~8.55 tons per year contemporaneous decrease + 39 tons per year limited emissions~~) for SO₂ emissions and ~~53.87~~ **39** tons per twelve (12) month consecutive period (~~14.87 tons per year contemporaneous decrease + 39 tons per year limited emissions~~) for NO_x emissions.
- (b) For PM₁₀, the net emission increase from any modification must be limited to less than 3.42 pounds per hour (~~15 tons per twelve (12) month consecutive period~~). Therefore, the allowable PM-10 emissions from the modification ~~cannot~~ **shall not** exceed ~~5.67~~ pounds per hour (~~24.84 tons per year = 10.84 tons per year contemporaneous decrease + 14~~ **15** tons per year limited emissions) for PM-10 emissions.

The changes to the Quarterly Report are as follows:

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR MANAGEMENT
COMPLIANCE DATA SECTION**

Part 70 Quarterly Report

Source Name: Hydraulic Press Brick Company
Source Address: Centerton Road
Mailing Address: Brooklyn, Indiana, 46111
Part 70 Permit No.: T109-6835-00007
Facility: Rotary kiln K4
Parameter: SO₂ and NO_x

Limit: The use of No. 4 fuel oil in rotary kiln K4 shall be limited to less than ~~1,211.46 thousand~~ **0.99 million** gallons per twelve (12) month consecutive period and the sulfur content of the No. 4 fuel oil delivered to rotary kiln K4 when burning No. 4 fuel oil, shall not exceed 0.5% by weight.

YEAR: _____

Month	Column 1	Column 2	Column 1 + Column 2
	No. 4 Fuel Oil Usage This Month	No. 4 Fuel Oil Usage Previous 11 Months	No. 4 Fuel Oil Usage 12 Month Total
Month 1			
Month 2			
Month 3			

9 No deviation occurred in this quarter.

9 Deviation/s occurred in this quarter.
Deviation has been reported on: _____

Submitted by: _____
Title / Position: _____
Signature: _____
Date: _____
Phone: _____

The following revisions have been made to the TSD (**bolded** language has been added, the language

with a line through it has been deleted). The OAM prefers that the Technical Support Document reflect the permit that was on public notice. Changes to the permit or technical support material that occur after the public notice are documented in this Addendum to the Technical Support Document. This accomplishes the desired result of ensuring that these types of concerns are documented and part of the record regarding this permit decision.

The Source Background and Description on page 1 of 13 of the TSD has been revised as follows:

The Office of Air Management (OAM) has reviewed a modification application from Hydraulic Press Brick Company relating to the modification of rotary kiln K4 to burn No. 4 fuel oil ~~instead of~~ **in addition to** natural gas and bituminous coal. This modification to change fuel will not result in any increase in capacity throughput or de-bottlenecking of the existing operation.

The Potential to Emit of Modification After Issuance on page 3 of 13 of the TSD has been revised as follows:

	Potential to Emit (tons/year)						
Process/facility	PM	PM-10	SO ₂	VOC	CO	NO _x	HAPs
one (1) rotary kiln, identified as K4	0.02 ^(b)	0.02	47.55 39.00	0.63 0.52	3.03 2.48	28.47 23.35	0.00
Contemporaneous Increases	17.08	14.06	--	--	--	--	--
Contemporaneous Decreases	29.00	10.84	8.55	0.55	7.44	14.87	--
Net Emissions	(11.90) 17.10	3.24 14.08	39.00	0.08 0.63	(4.41) 3.03	13.60 28.47	0.00
PSD Significant Level	25	15	40	40	100	40	NA

Note: Negative values denoted in (parentheses).

Contemporaneous increases calculated from the allowable emissions from the expanded shale aggregate crusher (ESA).

~~Contemporaneous decreases calculated from the two-year averaged emissions from rotary kiln K4.~~

- (a) This modification to an existing major stationary source is not major because the emissions increase is less than the PSD significant levels. Therefore, pursuant to 326 IAC 2-2, and 40 CFR 52.21, the PSD requirements do not apply to this modification.
- (b) The use of No. 4 fuel oil in rotary kiln K4 shall be limited to less than ~~1,211.46 thousand~~ **0.99 million** gallons per twelve (12) month consecutive period. For SO₂ and NO_x, the net emission increase from any modification must be limited to less than 40 tons per twelve (12) month consecutive period and for PM and PM10, the net emission increase from any modification must be limited to less than 25 and 15 tons, respectively, per twelve (12) month consecutive period. The No. 4 fuel oil limitation will limit the potential to emit SO₂ and NO_x to less than 40 tons per year, PM and PM 10 emissions are controlled to less than 25 and 15 tons per year, respectively, therefore pursuant to 326 IAC 2-2, the PSD requirements do not apply to this modification.

The discussion of 326 IAC 2-2 (Prevention of Significant Deterioration) on page 4 of 13 of the

TSD has been revised as follows:

- (a) The use of No. 4 fuel oil in rotary kiln K4 shall be limited to less than ~~1,211.46 thousand~~ **0.99 million** gallons per twelve (12) month consecutive period. For SO₂ and NO_x, the net emission increase from any modification must be limited to less than 40 tons per twelve (12) month consecutive period. Therefore, the allowable SO₂ and NO_x emissions from the modification ~~cannot~~ **shall not** exceed ~~47.55 39 tons per twelve (12) month consecutive period (8.55 tons per year contemporaneous decrease + 39 tons per year limited emissions)~~ for SO₂ emissions and ~~53.87 39 tons per twelve (12) month consecutive period (14.87 tons per year contemporaneous decrease + 39 tons per year limited emissions)~~ for NO_x emissions.
- (b) For PM₁₀, the net emission increase from any modification must be limited to less than 3.42 pounds per hour ~~(15 tons per twelve (12) month consecutive period)~~. Therefore, the allowable PM-10 emissions from the modification ~~cannot~~ **shall not** exceed ~~5.67 pounds per hour (24.84 tons per year – 10.84 tons per year contemporaneous decrease + 14 15 tons per year limited emissions)~~ for PM-10 emissions.

The No. 4 fuel oil usage limitation will limit the potential to emit SO₂ and NO_x such that the net emission increases for both pollutants are less than 40 tons per year. The particulate matter less than 10 microns emissions from the rotary kiln K4 shall be limited to ~~2.68~~ **3.42** pounds per hour. This emission limit is required to limit the potential to emit of PM₁₀ to less than 15 tons per year. Therefore, pursuant to 326 IAC 2-2, the PSD requirements do not apply to this modification.

Comment 3

In Condition D.2.2 of the Permit, this condition indicates that New Source Performance Standards for Calciners and Dryers in Mineral Industries (Subpart UUU) is applicable to the Kiln while combusting oil. During discussions between Hydraulic Press Brick and IDEM, it was indicated that the applicability of Subpart UUU was based upon the interpretation that the oil burner was a new "facility" and therefore triggered applicability of the rule. Subpart UUU, however, states that "the affected facility to which the provisions of this subpart apply is each calciner and dryer at a mineral processing plant." Based upon this wording, it would seem that the burner itself is not a separate "facility," but part of the dryer. Therefore, the addition of the oil burner would only be considered to be a modification if emissions of a regulated pollutant (particulate matter) increased as a result of the change on a pounds per hour basis. Hydraulic Press Brick does not believe that emissions would increase on a pounds per hour basis between coal and oil combustion. On this basis, NSPS should not be applicable to the proposed change, and this condition should be recorded to reflect the current opacity rule.

Response 3

After further review, the modification to the kiln to combust oil in addition to coal and natural gas does not trigger the applicability of Subpart UUU. As defined in 40 CFR 60, Subpart A, a modification "means any physical change in, or change in the method of operation of, an existing facility which increases the amount of any air pollutant (to which a standard applies) emitted into the atmosphere by that facility or which results in the emissions of any air pollutant (to which a standard applies) into the atmosphere not previously emitted."

Subpart UUU does not apply to this modification as the oil burner's potential to emit of particulate matter is less than the actual particulate matter from the existing coal and natural gas combusting kiln. There is no resulting increase in particulate matter emissions from this modification. Therefore, Condition D.2.2 has been deleted, and the remaining conditions have been renumbered. The changes to the permit are as follows:

~~D.2.2 Opacity~~

~~Pursuant to 326 IAC 12, (40 CFR Part 60.730 through 60.737, Subpart UUU) "Standards of Performance for Calciners and Dryers in Mineral Industries", the particulate matter emissions from rotary kiln K4 shall be limited to 0.04 grains per dry standard cubic foot (gr/dscf) and visible emissions shall be limited to 10% opacity, unless the emissions are discharged from an affected facility using a wet scrubbing control device.~~

The following revisions have been made to the TSD (**bolded** language has been added, the language with a ~~line~~ through it has been deleted). The OAM prefers that the Technical Support Document reflect the permit that was on public notice. Changes to the permit or technical support material that occur after the public notice are documented in this Addendum to the Technical Support Document. This accomplishes the desired result of ensuring that these types of concerns are documented and part of the record regarding this permit decision.

Page 4 of 13 of the Technical Support Document has been changed as follows to state that 40 CFR 60.730 through 60.737, Subpart UUU does not apply.

- (b) The kiln is **not** subject to the New Source Performance Standard, 326 IAC 12, (40 CFR 60.730 through 60.737, Subpart UUU), **as the modification does not increase the amount of any air pollutant (to which a standard applies) emitted into the atmosphere by that facility or which results in the emissions of any air pollutant (to which a standard applies) into the atmosphere not previously emitted.** ~~This rule limits the particulate matter emissions:~~

~~(1) To 0.04 grains per dry standard cubic foot (gr/dscf); and~~

~~(2) Visible emissions to 10% opacity, unless the emissions are discharged from an affected facility using a wet scrubbing control device.~~

~~The source will comply with this rule by using a wet scrubber to limit particulate matter emissions to 0.04 gr/dscf (see Appendix A, page 1, for detailed calculations).~~

Indiana Department of Environmental Management Office of Air Management

Technical Support Document (TSD) for a Part 70 Significant Source Modification

Source Background and Description

Source Name:	Hydraulic Press Brick Company
Source Location:	Centerton Road, Brooklyn, Indiana, 46111
County:	Morgan
SIC Code:	3295
Operation Permit No.:	T109-6835-00007
Operation Permit Issuance Date:	February 2, 1999
Significant Source Modification No.:	SSM109-11087-00007
Permit Reviewer:	Phillip Ritz/EVP

The Office of Air Management (OAM) has reviewed a modification application from Hydraulic Press Brick Company relating to the modification of rotary kiln K4 to burn No. 4 fuel oil instead of natural gas and bituminous coal. This modification to change fuel will not result in any increase in capacity throughput or de-bottlenecking of the existing operation.

History

On June 25, 1999, Hydraulic Press Brick Company submitted an application to the OAM requesting to modify one (1) rotary kiln, identified as K4, to burn No. 4 fuel oil (formerly permitted to burn coal and natural gas). This modification to change fuel will not result in any increase in capacity throughput or de-bottlenecking of the existing operation. Hydraulic Press Brick Company was issued a Part 70 permit (T109-6835-00007) on February 2, 1999. The changes proposed to the Title V are located at the end of this document.

Modified Emission Units and Pollution Control Equipment

The application includes information relating to the modification of the following equipment:

- (a) one (1) rotary kiln, identified as K4, with a maximum heat input of 100 million British Thermal Units (MMBtu) per hour burning No. 4 fuel oil (formerly permitted to burn coal and natural gas in Part 70 permit (T109-6835-00007) issued on February 2, 1999), with a maximum capacity of 20 tons of raw shale per hour, using a Peabody wet scrubber as control, and exhausting to stack ST4.

Enforcement Issue

There are no enforcement actions pending.

Recommendation

The staff recommends to the Commissioner that the Part 70 Significant Source Modification be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on June 26, 1999.

Emission Calculations

See Appendix A of this document for detailed emissions calculations (Appendix A, pages 1 of 1).

Potential To Emit of Modification

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as “the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA.”

This table reflects the PTE before controls for rotary kiln K4 when combusting No. 4 fuel oil. Control equipment is not considered federally enforceable until it has been required in a federally enforceable permit.

Pollutant	Potential To Emit (tons/year)
PM	21.90
PM-10	21.90
SO ₂	245.59
VOC	3.25
CO	15.64
NO _x	147.04

Justification for Modification

The Part 70 Operating permit is being modified through a Part 70 Significant Source Modification. This modification is being performed pursuant to 326 IAC 2-7-10.5(g), as this is a modification that would be subject to 326 IAC 2-2, and has the potential to emit greater than 25 tons of SO₂ and NO_x.

County Attainment Status

The source is located in Morgan County.

Pollutant	Status
PM-10	attainment
SO ₂	attainment
NO ₂	attainment
Ozone	attainment
CO	attainment
Lead	attainment

- (a) Volatile organic compounds (VOC) and oxides of nitrogen (NO_x) are precursors for the formation of ozone. Therefore, VOC and NO_x emissions are considered when evaluating the rule applicability relating to the ozone standards. Morgan County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NO_x emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

Source Status

Existing Source PSD or Emission Offset Definition (emissions after controls, based upon 8760 hours of operation per year at rated capacity and/or as otherwise limited):

Pollutant	Emissions (tons/year)
PM	320.04
PM-10	120.62
SO ₂	2,557.92
VOC	665.76
CO	273.31
NO _x	206.74

- (a) This existing source is a major stationary source because an attainment regulated pollutant is emitted at a rate of 250 tons per year or more, and it is not one of the 28 listed source categories.
- (b) These emissions were based on the Part 70 Permit issued on February 2, 1999.

Potential to Emit of Modification After Issuance

The table below summarizes the potential to emit, reflecting all limits, of the significant emission units after controls. The control equipment is considered federally enforceable only after issuance of this Part 70 source modification.

	Potential to Emit (tons/year)						
Process/facility	PM	PM-10	SO ₂	VOC	CO	NO _x	HAPs
one (1) rotary kiln, identified as K4	0.02 ^(b)	0.02	47.55	0.63	3.03	28.47	0.00
Contemporaneous Increases	17.08	14.06	--	--	--	--	--
Contemporaneous Decreases	29.00	10.84	8.55	0.55	7.44	14.87	--
Net Emissions	(11.90)	3.24	39.00	0.08	(4.41)	13.60	0.00
PSD Significant Level	25	15	40	40	100	40	NA

Note: Negative values denoted in (parentheses).

Contemporaneous increases calculated from the allowable emissions from the expanded shale aggregate crusher (ESA).

Contemporaneous decreases calculated from the two year averaged emissions from rotary kiln K4.

- (a) This modification to an existing major stationary source is not major because the emissions increase is less than the PSD significant levels. Therefore, pursuant to 326 IAC 2-2, and 40 CFR 52.21, the PSD requirements do not apply to this modification.
- (b) The use of No. 4 fuel oil in rotary kiln K4 shall be limited to less than 1,211.46 thousand gallons per twelve (12) month consecutive period. For SO₂ and NO_x, the net emission increase from any modification must be limited to less than 40 tons per twelve (12) month consecutive period and for PM and PM10, the net emission increase from any modification must be limited to less than 25 and 15 tons, respectively, per twelve (12) month consecutive period. The No. 4 fuel oil limitation will limit the potential to emit SO₂ and NO_x to less than 40 tons per year, PM and PM 10 emissions are controlled to less than 25 and 15 tons per year, respectively, therefore pursuant to 326 IAC 2-2, the PSD requirements do not apply to this modification.
- (c) The SO₂ and NO_x emissions are each limited at levels less than 40 tons/yr, therefore, PSD requirements do not apply. (See Appendix A, page 1 of 1).

Federal Rule Applicability

- (a) The modification is not subject to the New Source Performance Standard 326 IAC 12, 40 CFR 60.670 through 60.676, Subpart OOO as it is not one of the affected facilities.
- (b) The kiln is subject to the New Source Performance Standard, 326 IAC 12, (40 CFR 60.730 through 60.737, Subpart UUU). This rule limits the particulate matter emissions:
 - (a) To 0.04 grains per dry standard cubic foot (gr/dscf); and
 - (b) Visible emissions to 10% opacity, unless the emissions are discharged from an affected facility using a wet scrubbing control device.

The source will comply with this rule by using a wet scrubber to limit particulate matter emissions to 0.04 gr/dscf (see Appendix A, page 1, for detailed calculations).
- (c) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs), 40 CFR 63, applicable to this modification.

State Rule Applicability - Individual Facilities

326 IAC 2-2 (Prevention of Significant Deterioration)

This facility is not subject to 326 IAC 2-2 (Prevention of Significant Deterioration). However, the existing source is a major source. Therefore, any modification to this source which has the potential to emit of any of the criteria pollutants greater than the major modification thresholds, would be subject to the requirements of 326 IAC 2-2.

- (a) The use of No. 4 fuel oil in rotary kiln K4 shall be limited to less than 1,211.46 thousand gallons per twelve (12) month consecutive period. For SO₂ and NO_x, the net emission increase from any modification must be limited to less than 40 tons per twelve (12) month consecutive period. Therefore, the allowable SO₂ and NO_x emissions from the modification cannot exceed 47.55 tons per twelve (12) month consecutive period (8.55 tons per year contemporaneous decrease + 39 tons per year limited emissions) for SO₂ emissions and 53.87 tons per twelve (12) month consecutive period (14.87 tons per year contemporaneous decrease + 39 tons per year limited emissions) for NO_x emissions.
- (b) For PM₁₀, the net emission increase from any modification must be limited to less than 3.42 pounds per hour (15 tons per twelve (12) month consecutive period). Therefore, the allowable PM-10 emissions from the modification cannot exceed 5.67 pounds per hour (24.84 tons per year = 10.84 tons per year contemporaneous decrease + 14 tons per year limited emissions) for PM-10 emissions.

The No. 4 fuel oil usage limitation will limit the potential to emit SO₂ and NO_x such that the net emission increases for both pollutants are less than 40 tons per year. The particulate matter less than 10 microns emissions from the rotary kiln K4 shall be limited to 2.68 pounds per hour. This emission limit is required to limit the potential to emit of PM₁₀ to less than 15 tons per year. Therefore pursuant to 326 IAC 2-2, the PSD requirements do not apply to this modification.

326 IAC 6-3-2 (Process Operations)

Pursuant to 326 IAC 6-3-2 (Process Operations), the particulate matter (PM) emissions from the one (1) rotary kiln (ID K4) shall each not exceed 30.51 pounds per hour when each operating at a process weight rate of 40,000 pounds per hour of crushed shale (equivalent to 20 tons per hour).

Interpolation and extrapolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67}$$

where E = rate of emission in pounds per hour and
P = process weight rate in tons per hour

According to the emission calculations (See Appendix A, pages 4 through 7 of 9), when operating with the wet scrubber as a control, the one (1) rotary kiln (ID K4) has a potential to emit (PTE) PM of 5.0 pounds per hour, and the facilities are in compliance with the requirements. The wet scrubber shall be in operation at all times the one (1) rotary kiln (ID K4) are in operation, in order to comply with this limit.

326 IAC 7-1.1-2 (Sulfur Dioxide Emission Limitations)

The sulfur dioxide emissions from the one (1) rotary kiln (ID K4) when burning residual oil shall be limited to 1.6 pounds per million Btu of heat input from residual oil.

According to the emission calculations:

- (a) the one (1) rotary kiln (ID K4) has a potential to emit (PTE) SO₂ of 0.56 pounds per MMBtu.

Therefore, one (1) rotary kiln (ID K4) is in compliance with the requirement. (See Appendix A, pages 4 through 9 of 9).

326 IAC 7-2-1(Sulfur Dioxide Emission Limitations)

Pursuant to 326 IAC 7-2-1 (Reporting Requirements), the source shall submit to the commissioner upon request: calendar month or average sulfur content, heat content, fuel consumption, and sulfur dioxide emission rate in pounds per million Btu.

326 IAC 8-1-6 (New Facilities: General Reduction Requirements)

This rule applies to facilities located anywhere in the state that were constructed on or after January 1, 1980, and which have potential volatile organic compound (VOC) emissions of 25 tons per year or more. The one (1) rotary kiln (ID K4) has potential VOC emissions of less than 25 tons per year; therefore, this rule does not apply.

Compliance Requirements

Permits issued under 326 IAC 2-7 are required to ensure that sources can demonstrate compliance with applicable state and federal rules on a more or less continuous basis. All state and federal rules contain compliance provisions, however, these provisions do not always fulfill the requirement for a more or less continuous demonstration. When this occurs IDEM, OAM, in conjunction with the source, must develop specific conditions to satisfy 326 IAC 2-7-5. As a result, compliance requirements are divided into two sections: Compliance Determination Requirements and Compliance Monitoring Requirements.

Compliance Determination Requirements in Section D of the permit are those conditions that are found more or less directly within state and federal rules and the violation of which serves as grounds for enforcement action. If these conditions are not sufficient to demonstrate continuous compliance, they will be supplemented with Compliance Monitoring Requirements, also Section D of the permit. Unlike Compliance Determination Requirements, failure to meet Compliance Monitoring conditions would serve as a trigger for corrective actions and not grounds for enforcement action. However, a violation in relation to a compliance monitoring condition will arise through a source's failure to take the appropriate corrective actions within a specific time period.

The compliance monitoring requirements applicable to this modification are as follows:

- (a) The one (1) rotary kiln (ID K4) has applicable compliance monitoring conditions as specified below:

- (1) The wet scrubber for PM control shall be in operation at all times when the one (1) rotary kiln (ID K4) are in operation.
- (2) The Permittee shall record the total static pressure drop across the wet scrubber used in conjunction with the one (1) rotary kiln (ID K4), at least once daily when the one (1) rotary kiln (ID K4) is in operation when venting to the atmosphere. Unless operated under conditions for which the Compliance Response Plan specifies otherwise, the water flow rate across the wet scrubber shall be maintained above 8.0 inches of water or a range established during the latest stack test. The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when the pressure reading is outside of the above mentioned range for any one reading. The instrument used for determining the pressure shall comply with Section C - Pressure Gauge Specifications, of this permit, shall be subject to approval by IDEM, OAM, and shall be calibrated at least once every six (6) months.
- (3) In the event that scrubber failure has been observed the affected compartments will be shut down immediately until the failed units have been repaired or replaced. Within eight (8) hours of the determination of failure, response steps according to the timetable described in the Compliance Response Plan shall be initiated. For any failure with corresponding response steps and timetable not described in the Compliance Response Plan, response steps shall be devised within eight (8) hours of discovery of the failure and shall include a timetable for completion.
- (4) Daily visible emission notations of the one (1) rotary kiln (ID K4) wet scrubber stack (S/V ID ST4) emissions shall be performed once per day during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal. For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time. In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions. A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process. The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when an abnormal emission is observed.

These monitoring conditions are necessary because the wet scrubber for the rotary kiln (ID K4) must operate properly to ensure compliance with 326 IAC 6-3 (Process Operations) and 326 IAC 2-7 (Part 70).

Changes Proposed

The following changes have been made to the Part 70 Operating Permit (T109-6835-00007):

- (a) Condition A.2, Page 6 of 46
Add to the listing of emission units the following:
- (b) ~~Two (2)~~ **One (1)** rotary kilns, identified as K3 and K4, each with a maximum heat input of 100 MMBtu per hour burning natural gas or bituminous coal, each with a maximum capacity of 20 tons of raw shale per hour, each using a Peabody wet scrubber as control, and each exhausting to stack ST4.
- (c) **one (1) rotary kiln, identified as K4, with a maximum heat input of 100 million**

British Thermal Units (MMBtu) per hour burning No. 4 fuel oil, with a maximum capacity of 20 tons of raw shale per hour, using a Peabody wet scrubber as control, and exhausting to stack ST4.

(b) Section D.2, Pages 32, 33, 34, 35, 36 and 36a, has been modified as follows:

SECTION D.2 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]

- (a) ~~Two (2)~~ **One (1)** rotary kilns, identified as K3 ~~and K4~~, each with a maximum heat input of 100 MMBtu per hour burning natural gas or bituminous coal, each with a maximum capacity of 20 tons of raw shale per hour, each using a Peabody wet scrubber as control, and each exhausting to stack ST4.
- (b) **one (1) rotary kiln, identified as K4, with a maximum heat input of 100 million British Thermal Units (MMBtu) per hour burning No. 4 fuel oil, with a maximum capacity of 20 tons of raw shale per hour, using a Peabody wet scrubber as control, and exhausting to stack ST4.**
- (c) One (1) rotary kiln, identified as K5, with a maximum heat input of 100 MMBtu per hour burning natural gas or bituminous coal, with a maximum capacity of 40 tons of raw shale per hour, using a cloth baghouse as control, and exhausting to stack ST5.

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.2.1 PSD Minor Limit [326 IAC 2-2] [40 CFR 52.21]

- (a) **The use of No. 4 fuel oil in rotary kiln K4 shall be limited to less than 1,211.46 thousand gallons per twelve (12) month consecutive period. For SO₂ and NO_x, the net emission increase from any modification must be limited to less than 40 tons per twelve (12) month consecutive period. Therefore, the allowable SO₂ and NO_x emissions from the modification cannot exceed 47.55 tons per twelve (12) month consecutive period (8.55 tons per year contemporaneous decrease + 39 tons per year limited emissions) for SO₂ emissions and 53.87 tons per twelve (12) month consecutive period (14.87 tons per year contemporaneous decrease + 39 tons per year limited emissions) for NO_x emissions.**
- (b) **For PM₁₀, the net emission increase from any modification must be limited to less than 3.42 pounds per hour (15 tons per twelve (12) month consecutive period). Therefore, the allowable PM-10 emissions from the modification cannot exceed 5.67 pounds per hour (24.84 tons per year = 10.84 tons per year contemporaneous decrease + 14 tons per year limited emissions) for PM-10 emissions.**

Compliance with this limit makes 326 IAC 2-2 (Prevention of Significant Deterioration) and 40 CFR 52.21 not applicable.

D.2.2 Opacity

Pursuant to 326 IAC 12, (40 CFR Part 60.730 through 60.737, Subpart UUU) "Standards of Performance for Calciners and Dryers in Mineral Industries", the particulate matter emissions from rotary kiln K4 shall be limited to 0.04 grains per dry standard cubic foot (gr/dscf) and visible emissions shall be limited to 10% opacity, unless the emissions are discharged from an affected facility using a wet scrubbing control device.

D.2.43 Sulfur Dioxide (SO₂) [326 IAC 7-1.1-1]

- (a)** Pursuant to 326 IAC 7-1.1-1 (Sulfur Dioxide Emissions Limitations), the SO₂ emissions from each of the ~~three (3)~~ **two (2)** rotary kilns (IDs K3, ~~K4~~ and K5) when burning coal, shall not exceed six (6) pounds per MMBtu of coal combustion.

Pursuant to Operation Permit 55-02-90-0094, ~~55-02-90-0095~~, and 55-02-90-0096, the sulfur content of the coal delivered to the ~~three (3)~~ **two (2)** rotary kilns (IDs K3, ~~K4~~ and K5) when burning coal, shall not exceed 2.40% by weight.

- (b) The sulfur dioxide emissions from the one (1) rotary kiln (ID K4) when burning No. 4 fuel oil shall be limited to 1.6 pounds per MMBtu of heat input from No. 4 fuel oil.**

D.2.24 Particulate Emission Limitations [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2 (Process Operations), the allowable PM emission rate from each of the:

- (a)** two (2) rotary kilns (IDs K3 and K4) shall not exceed 30.51 pounds per hour each when operating at a process weight rate of 40,000 pounds per hour (equivalent to 20 tons per hour). When both of the two (2) rotary kilns (IDs K3 and K4) are operating the allowable PM emission rate from stack ST4 shall not exceed the sum of the individual limits for each kiln (equivalent to 61.02 pounds per hour).

The pound per hour limitation was calculated with the following equation:

Interpolation and extrapolation of the data for the process weight rate up to 60,000 pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67} \quad \text{where } E = \text{rate of emission in pounds per hour; and} \\ P = \text{process weight rate in tons per hour}$$

- (b)** one (1) rotary kiln (ID K5) shall not exceed 42.53 pounds per hour when operating at a process weight rate of 80,000 pounds per hour (equivalent to 40 tons per hour).

The pound per hour limitation was calculated with the following equation:

Interpolation and extrapolation of the data for the process weight rate in excess of sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 55.0P^{0.11}-40 \text{ where } E = \text{rate of emission in pounds per hour, and} \\ P = \text{process weight rate in tons per hour}$$

D.2.35 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for this facility and its control devices.

Compliance Determination Requirements

D.2.46 Testing Requirements [326 IAC 2-7-6(1),(6)]

During the period between 30 and 36 months after issuance of this permit, the Permittee shall perform PM testing on the one (1) Kiln (ID K5) and ~~both of the two (2)~~ **the one (1) Kilns (ID K3 and K4)** utilizing Methods 5 or 17 (40 CFR 60, Appendix A) for PM or other methods as approved by the Commissioner. This test shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. In addition to these requirements, IDEM may require compliance testing when necessary to determine if the facility is in compliance.

D.2.57 Sulfur Dioxide Emissions and Sulfur Content [326 IAC 2-7-5(3)(A)] [326 IAC 2-7-6]
Pursuant to 326 IAC 7-2, the Permittee shall demonstrate that the sulfur dioxide emissions do not exceed six (6.0) pounds per MMBtu when burning coal **and one and six tenths (1.6) pounds per MMBtu when burning No. 4 fuel oil.** Compliance shall be determined utilizing one of the following options:

- (a) Coal sampling and analysis shall be performed using one of the following procedures:
 - (1) Minimum Coal Sampling Requirements and Analysis Methods [326 IAC 3-7-2(b)(3)]:
 - (A) The coal sample acquisition point shall be at a location where representative samples of the total coal flow to be combusted by the facility or facilities may be obtained. A single as-bunkered or as-burned sampling station may be used to represent the coal to be combusted by multiple facilities using the same stockpile feed system;
 - (B) Coal shall be sampled at least three (3) times per day and at least one (1) time per eight (8) hour period unless no coal is bunkered during the preceding eight (8) hour period;
 - (C) Minimum sample size shall be five hundred (500) grams;
 - (D) Samples shall be composited and analyzed at the end of each calendar month;
 - (E) Preparation of the coal sample, heat content analysis, and sulfur content analysis shall be determined pursuant to 326 IAC 3-7-2(c), (d), (e); or
 - (a) Sample and analyze the coal pursuant to 326 IAC 3-7-2(a);
 - (c) Sample and analyze the coal pursuant to 326 IAC 3-7-3; or
- (b) Upon written notification to IDEM by a facility owner or operator, continuous emission monitoring data collected and reported pursuant to 326 IAC 3-5-1 may be used as the means for determining compliance with the emission limitations in 326 IAC 7-2. Upon such notification, the other requirements of 326 IAC 7-2 shall not apply. [326 IAC 7-2-1(e)]
- (c) Compliance may also be determined by conducting a stack test for sulfur dioxide emissions from the three (3) rotary kilns (IDs K3, K4 and K5), using 40 CFR 60, Appendix A, Method 6 in accordance with the procedures in 326 IAC 3-6, which is conducted with such frequency as to generate the amount of information required by (a) or (b) above. [326 IAC 7-2-1(b)]

A determination of noncompliance pursuant to any of the methods specified in (a), (b), or (c) above shall not be refuted by evidence of compliance pursuant to the other method.

D.2.68 Particulate Matter (PM)

- (a) The wet scrubber for PM control shall be in operation at all times when the two (2) rotary kilns (IDs K3 and K4) are in operation.
- (b) The baghouse for PM control shall be in operation at all times when the one (1) rotary kiln (ID K5) is in operation.

Compliance Monitoring Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

D.2.79 Parametric Monitoring

-
- (a) The Permittee shall record the total static pressure drop across the wet scrubber used in conjunction with the two (2) rotary kilns (IDs K3 and K4), at least once daily when the two (2) rotary kilns (IDs K3 and K4) are in operation when venting to the atmosphere. Unless operated under conditions for which the Compliance Response Plan specifies otherwise, the pressure drop across the wet scrubber shall be maintained above 8.0 inches of water or a range established during the latest stack test. The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when the pressure reading is outside of the above mentioned range for any one reading.
- (b) The Permittee shall record the total static pressure drop across the baghouse used in conjunction with the one (1) rotary kiln (ID K5), at least once daily when the one (1) rotary kiln (ID K5) is in operation when venting to the atmosphere. Unless operated under conditions for which the Compliance Response Plan specifies otherwise, the pressure drop across the baghouse shall be maintained within the range of 3.0 and 8.0 inches of water or a range established during the latest stack test. The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when the pressure reading is outside of the above mentioned range for any one reading.

The instrument used for determining the pressure shall comply with Section C - Pressure Gauge Specifications, of this permit, shall be subject to approval by IDEM, OAM, and shall be calibrated at least once every six (6) months.

D.2.810 Baghouse Inspections

An inspection shall be performed each calendar quarter of all bags controlling the one (1) rotary kiln (ID K5) operation when venting to the atmosphere. All defective bags shall be replaced.

D.2.911 Broken or Failed Bag or Scrubber Detection

In the event that bag or scrubber failure has been observed.

- (a) The affected compartments will be shut down immediately until the failed units have been repaired or replaced. Within eight (8) hours of the determination of failure, response steps according to the timetable described in the Compliance Response Plan shall be initiated. For any failure with corresponding response steps and timetable not described in the Compliance Response Plan, response steps shall be devised within eight (8) hours of discovery of the failure and shall include a timetable for completion. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).
- (b) For single compartment baghouses, failed units and the associated process will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

D.2.4012 Visible Emissions Notations

- (a) Daily visible emission notations of the two (2) rotary kilns (IDs K3 and K4) wet scrubber stack (S/V ID ST4) and the one (1) rotary kiln (ID K5) baghouse stack (S/V ID ST 5) emissions shall be performed once per day during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.
- (b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.

- (c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.
- (d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.
- (e) The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when an abnormal emission is observed.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.2.4113 Record Keeping Requirements

- (a) To document compliance with Condition D.2.4**3**, the Permittee shall maintain records in accordance with (1) through (4) below when burning coal. Records maintained for (1) through (4) shall be taken monthly and shall be complete and sufficient to establish compliance with the PM and SO₂ emission limits established in D.2.4 **3** and D.2.2 **4**.
 - (1) Calendar dates covered in the compliance determination period;
 - (2) Actual coal usage since last compliance determination period;
 - (3) Sulfur content, heat content, and ash content; and
 - (4) Sulfur dioxide emission rates.
- (b) **To document compliance with Condition D.2.1 and D.2.3, the Permittee shall maintain records in accordance with (1) through (6) below. Records maintained for (1) through (6) shall be taken monthly and shall be complete and sufficient to establish compliance with the SO₂ and NO_x usage limits and/or the SO₂ and NO_x emission limits established in Condition D.2.1, as pertains to rotary kiln K4.**
 - (1) **Calendar dates covered in the compliance determination period;**
 - (2) **Actual No. 4 fuel oil usage since last compliance determination period;**
 - (3) **Sulfur content, heat content, and ash content; and**
 - (4) **Sulfur dioxide emission rates.**
- ~~(b)~~(c) Pursuant to 326 IAC 3-7-5(a), owners or operators of sources with total coal-fired capacity greater than or equal to one hundred (100) MMBtu per hour actual heat input shall develop a standard operating procedure (SOP) to be followed for sampling, handling, analysis, quality control, quality assurance, and data reporting of the information collected pursuant to 326 IAC 3-7-2 through 326 IAC 3-7-4. In addition, any revision to the SOP shall be submitted to IDEM, OAM.
- ~~(e)~~(d) To document compliance with Condition D.2.7 **9**, the Permittee shall maintain the following as pertains to the baghouse and the wet scrubber:
 - (1) Daily records of the following operational parameters during normal operation when venting to the atmosphere:
 - (A) Inlet and outlet differential static pressure; and
 - (B) Cleaning cycle: frequency and differential pressure.

- (2) Documentation of all response steps implemented, per event .
- (3) Operation and preventive maintenance logs, including work purchases orders, shall be maintained.
- (4) Quality Assurance/Quality Control (QA/QC) procedures.
- (5) Operator standard operating procedures (SOP).
- (6) Manufacturer's specifications or its equivalent.
- (7) Equipment "troubleshooting" contingency plan.
- (8) Documentation of the dates vents are redirected.
- (d) To document compliance with Condition D.2.810, the Permittee shall maintain the following as pertains to the baghouse:
 - (1) To document compliance with Condition D.2.810, the Permittee shall maintain records of the results of the inspections required under Condition D.2.810 and the dates the vents are redirected.
- (e) To document compliance with Condition D.2.4012 the Permittee shall maintain the following as pertains to the baghouse:
 - (1) To document compliance with Condition D.2.4012, the Permittee shall maintain records of daily visible emission notations of the three (3) rotary kilns (IDs K3, K4 and K5) stack exhaust.
- (f) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.2.14 Reporting Requirements

A quarterly summary of the information to document compliance with Condition D.2.1 shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported.

- (c) A Quarterly Report, Page 46, has been added to the permit.

Conclusion

The construction of this proposed modification shall be subject to the conditions of the attached proposed Part 70 Significant Source Modification No.109-11087-00007

Appendix A: Emissions Calculations
Commercial/Institutional/Residential Combustors
#4 Fuel Oil

Page 1 of 1 TSD App A

Company Name: Hydraulic Press Brick Company
Address City IN Zip: Centerton Road, Brooklyn, IN, 46111
Source Modification: 109-11087
Plt ID: 109-00007
Reviewer: PR/EVP
Date: 06/25/99

Heat Input Capacity mmBtu/hr	Potential Throughput kgals/year	S = Weight % Sulfur 0.5				
100.00	6,257.14					
Emission Factor in lb/kgal	PM	PM10	Pollutant			
	7	7	SO2 78.5	NOx 47.0	VOC 1.04	CO 5.0
Potential Emission in tons/yr	21.90	21.90	245.59	147.04	3.25	15.64

Heat Input Capacity MMBtu/hr	Fuel Usage Limitation	Potential Throughput kgals/year	S = Weight % Sulfur 0.5			
100.00	80.64%	1,211.46				
Emission Factor in lb/kgal	PM*	PM10*	Pollutant			
	0.0	0.0	SO2 78.5	NOx 47.0	VOC 1.0	CO 5.0
Potential Emission in tons/yr	0.02	0.02	47.55	28.47	0.63	3.03

Methodology

1 gallon of #4 Fuel oil has a heating value of 140,000 Btu

Potential Throughput (kgals/year) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1kgal per 1000 gallon x 1 gal per 0.140 MMBtu

Emission Factors are from AP 42 Tables 1.3-2 and 1.3-4 (SCC 1-03-004-01/02-03 and 1-03-004-04)

PM and PM10 emissions controlled with a wet scrubber with 99.5% efficiency.

Emission (tons/yr) = Throughput (kgals/year) x Emission Factor (lb/kgal)/2,000 lb/ton